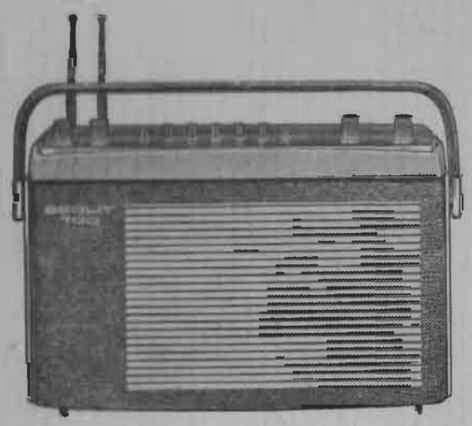
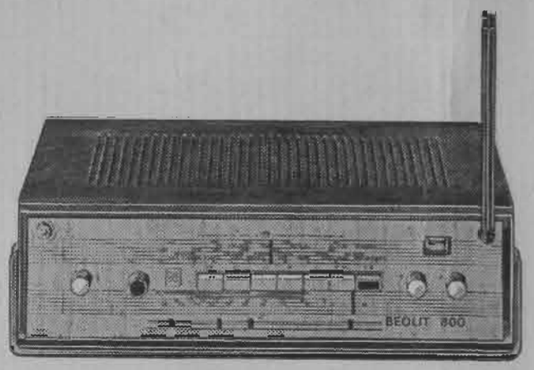
RYLAND HUNTLEY
Radiolounge
11, OLD BOND STREET,
BATH. — Telephone 4322

beolit 700 - 800
types 1301 - 1302

SERVICE MANUAL





3-66
PRINTED IN DENMARK
I-4 EKSPARS-TRYKKERIET - STRUER

A/S BANG & OLUFSEN PRODUKTIONSSELSKAB

STRUER-DENMARK Telephone (0 78) 5 11 22* - Telex 4269 - Cable Address Bangoluf

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TECHNICAL DATA

Aerial, AM: Ferrite aerial for LW and MW. Telescopic whip for 49 m. Provision for connection of auto aerial; ferrite aerial may be cut out on LW and MW by means of pushbutton.

Aerial, FM: One telescopic whip; provision for connection of auto aerial.

Automatic frequency control on FM.

Auto mounting bracket: Type 920 H 5 - for Type 1301 only.

Battery drain: AM, approx. 21 mA at low volume; approx. 60 mA at 50 mW output.

Compensation for decreasing battery voltage: Voltage-stabilized output stage.

Dimensions, Type 1301: 328 mm wide, 233 mm high, 94 mm deep ($12\,^{7}/_{8} \times 9\,^{3}/_{16} \times 3\,^{3}/_{4}$ in.).

Dimensions, Type 1302: 334 mm wide, 238 mm high, 98 mm deep ($13\,^{3}/_{16} \times 9\,^{3}/_{8} \times 3\,^{7}/_{8}$ in.).

Dry cells: Six 1.5-volt standard dry cells (American standard: Type D).

Extension speaker: 3.5 Ω, DIN plug cuts out built-in speaker when inserted in jack.

FM radiation: Suppressed in accordance with FTZ standards.

Gramophone: 5-contact DIN jack, 20 KΩ; also used as tape recorder connection.

Power output: 1.8 watts max.

Radicator: AM and FM tuning, battery checking.

Tape recorder connection: 5-contact DIN socket, 20 KΩ; also used as gramophone connection.

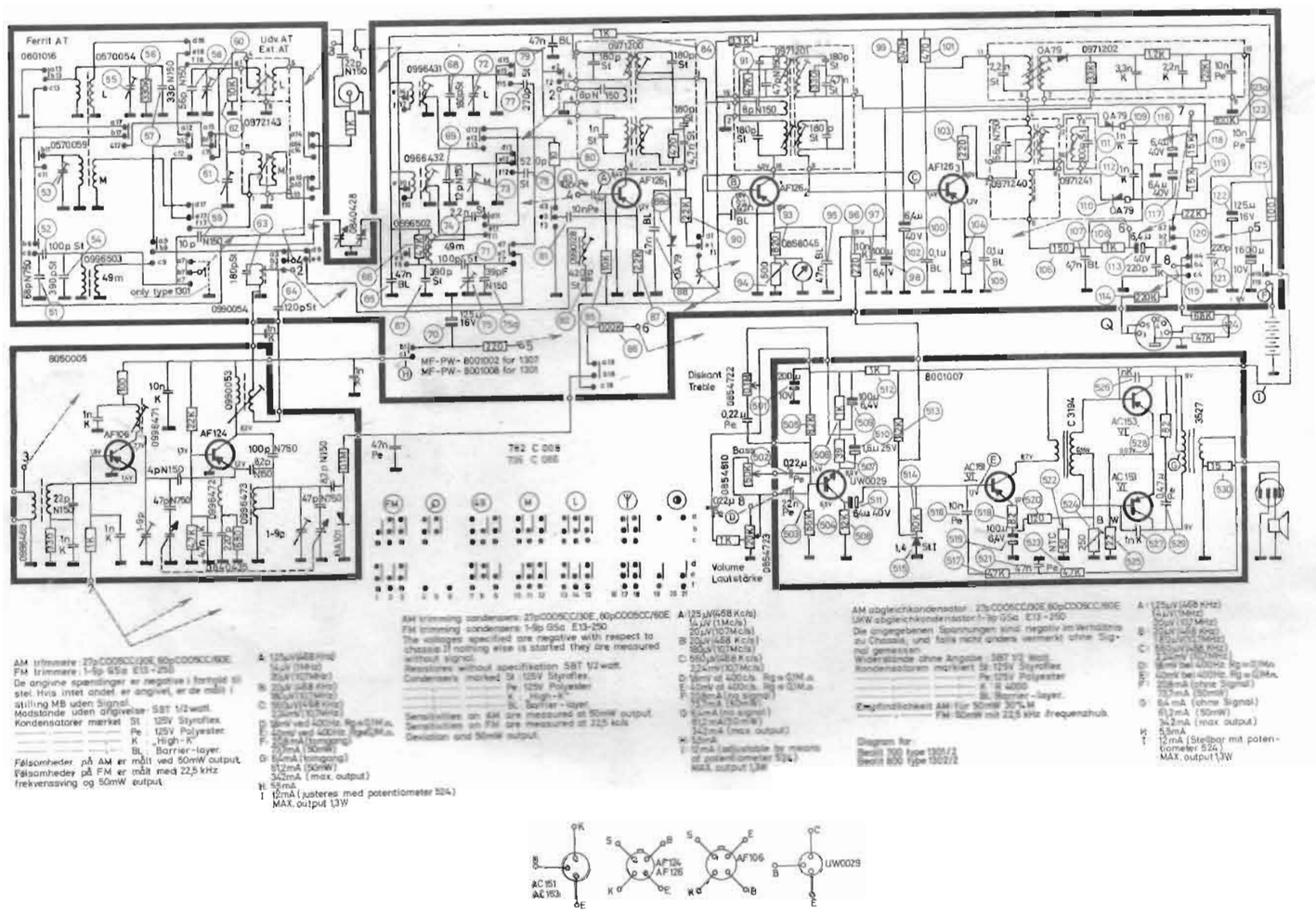
Wave bands:

LW	940	-	2040 m,	320	-	147 kc/s
MW	187	-	545 -	1603	-	520 -
49 m	48.4	-	50.4 -	6.2	-	5.95 Mc/s
FM				87.5	-	108 -

Weight, Type 1301: 3.55 kg (7.8 lbs) inclusive of dry cells.

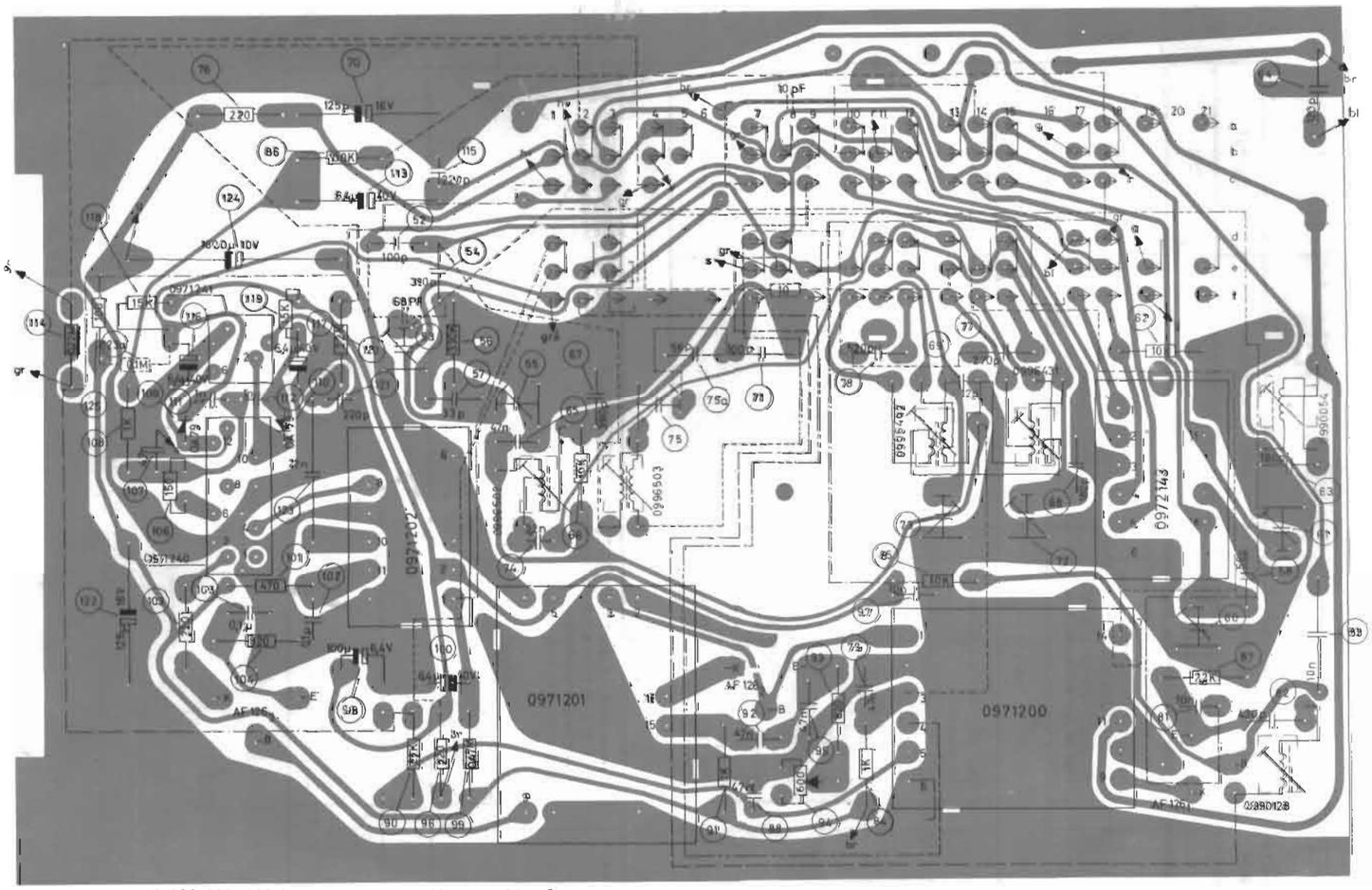
Weight, Type 1302: 4.3 kg (9.5 lbs) inclusive of dry cells.

CIRCUIT DIAGRAM OF BEOLIT 700 AND BEOLIT 800



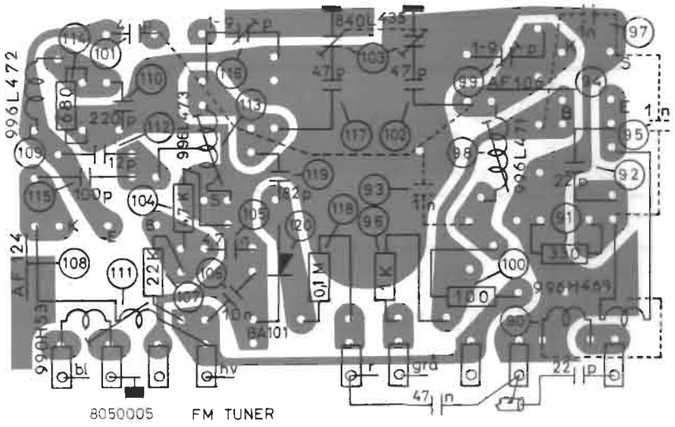
Addendum: Terminal numbers of speaker jack, in order from left to right, should be 1, 2, 3, 4.

PW UNITS 8001002 AND 8001008, LOCATION OF COMPONENTS



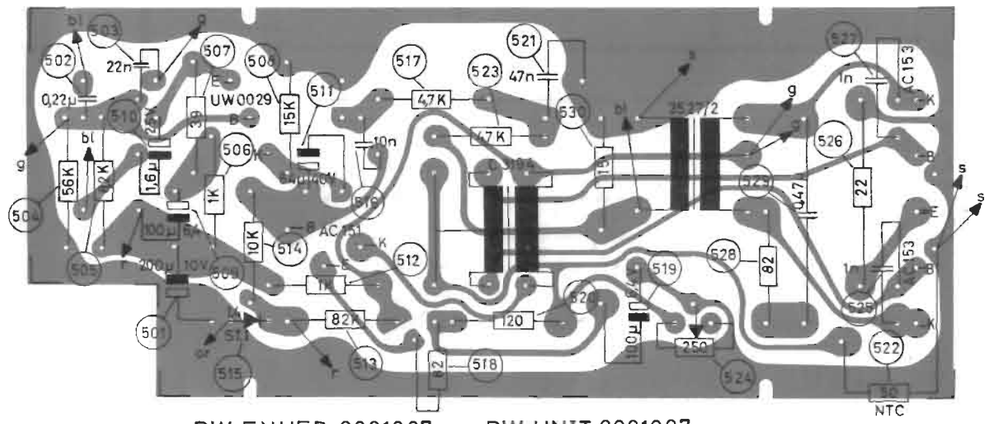
PW ENHED 8001002 - 8001008 PW UNIT 8001002 - 8001008

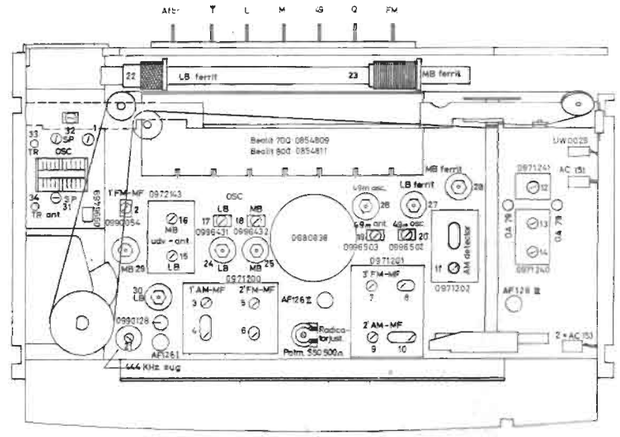
PW UNITS 8050005 AND 8001007

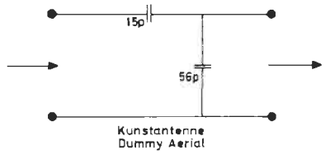


Ledningsfarver — Colour of wires — Kabelfarben

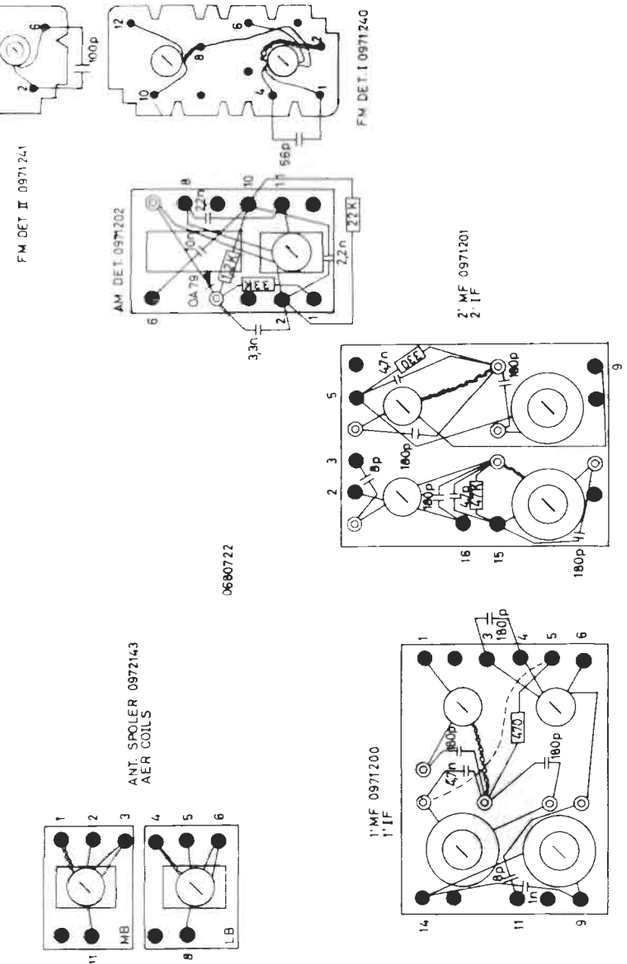
bl: blå	—	blue	— blau
br: brun	—	brown	— braun
g: gul	—	yellow	— gelb
gr: grøn	—	green	— grün
grå: grå	—	grey	— grau
hv: hvid	—	white	— weiss
or: orange	—	orange	— orange
r: rød	—	red	— rot
s: sort	—	black	— schwarz
v: violet	—	violet	— violett







WIRING DIAGRAM FOR IF TRANSFORMERS



SENSITIVITY MEASUREMENTS AND ALIGNMENT PROCEDURE

RANGE	DIAL SETTING	RF CONNECTION	OSCILLOGRAPH CONNECTION	FREQUENCY	ALIGNMENT	SENSITIVITY	OUTPUT
AM-IF Circuits							
					Turn core of coil 21 all the way out		
MW	approx. 1 Mc/s	Point A through 0.1 µF	Point D	444 kc/s	Coils 11, 10, 9, 4, 3 for max.	Point A: 125 µV	50 mW
MW	approx. 1 Mc/s	Point B through 0.1 µF		444 kc/s	response and symmetrical curve	Point B: 20 µV	
MW	approx. 1 Mc/s	Point C through 0.1 µF		444 kc/s	Bandwidth 5 kc/s at 6 dB.	Point C: 560 µV	
MW	approx. 1 Mc/s	Aerial socket		444 kc/c	Coil 21 for minimum response		
AM-RF-Circuits							
LW osc.	160 kc/s	Aerial socket			Coil 17		
LW osc.	272 kc/s	- -			Trimmer 24		
MW osc.	584 kc/s	- -			Coil 18		
MW osc.	1484 kc/s	- -			Trimmer 25		
49 m osc.	5.95 Mc/s	- -			Coil 20		
49 m osc.	6.2 Mc/s	- -			Trimmer 26		
LW ferrite	160 kc/s	Measured in screened room with frame aerial			Coil 22	450 µV/m	50 mW
LW ferrite	272 kc/s				Trimmer 27	275 µV/m	100 mW
MW ferrite	584 kc/s	- - -			Coil 23	175 µV/m	50 mW
MW ferrite	1484 kc/s	- - -			Trimmer 28	130 µV/m	100 mW
LW ext. aerial	160 kc/s	Aerial socket through dummy aerial			Coil 15	85 µV	50 mW
LW ext. aerial	272 kc/s	- -			Trimmer 30	140 µV	500 mW
MW ext. aerial	584 kc/s	- -			Coil 16	76 µV	50 mW
MW ext. aerial	1484 kc/s	- -			Trimmer 29	140 µV	500 mW
49 m ext. aerial	5.95 Mc/s	Aerial socket without dummy aerial			Coil 19	21 µV/m	50 mW
FM-IF Circuits							
FM	97 Mc/s	Aerial socket	AF 126_3 collector with diode probe	10.7 Mc/s	Detune coils 12, 13, 14. Coils 1, 2, 5, 6, 7, 8 for max. response and symmetrical curve. Bandwidth 250 kc/s ± 30 kc/s at 6 dB	2,4 µV EMF	200 mW
FM	97 Mc/s	Aerial socket	Across 220 pF (No. 115) without diode probe	10.7 Mc/s	Coils 13, 14 and coil 12 for best noise suppression. Repeat until perfectly symmetrical S-curve is obtained.	Signal/noise ratio: 1.6 µV	12 dB
FM-RF Circuits							
FM osc.	89 Mc/s	Aerial socket			Coil 32		
FM osc.	106 Mc/s	- -			Trimmer 33		
FM RF	89 Mc/s	- -			Coil 31		
FM RF	106 Mc/s	- -			Trimmer 34		

AM-IF alignment: Sweepgenerator: Frequency swing approx. 20 kc/s.

AM sensitivity measurements: Signal generator: 400 c/s — 30 % modulated.

FM-IF alignment: Sweepgenerator: Frequency swing approx. 1 Mc/s.

FM sensitivity measurements: Sweepgenerator: Frequency swing 22.5 kc/s — 400 c/s.

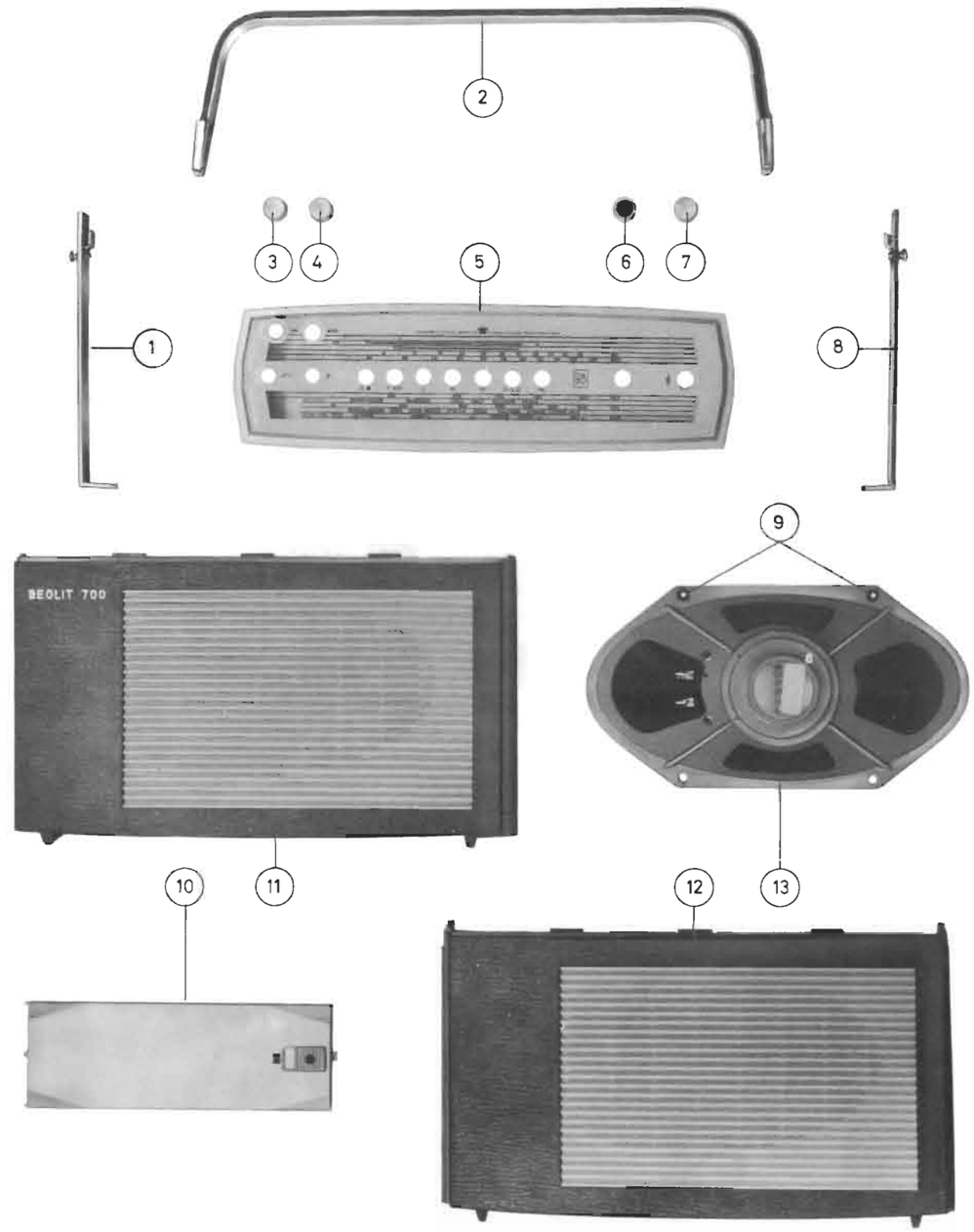
PARTS LIST, BEOLIT 700, Type 1301

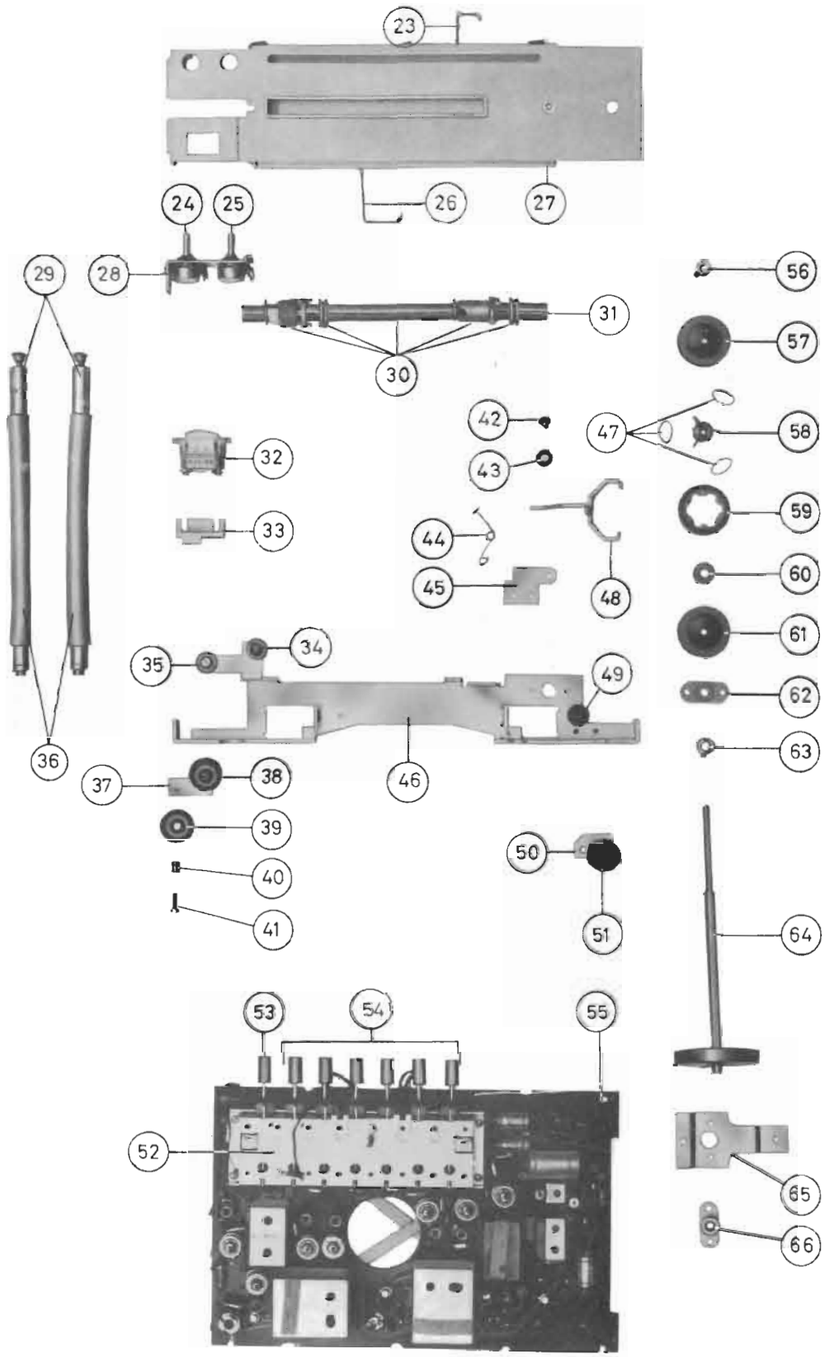
* 1	Ornamental strip	0690085
* 2	Carrying handle	0760426
* 3	Knob, volume	0322241
4	Knob, bass	0322241
* 5	Top, complete with dial etc.	0690108
* 6	Knob, tuning	0760492
7	Knob, treble	0322241
8	Ornamental strip	0690085
9	Bushings	0412257
*10	Battery cover, complete	0690083
*11	Cabinet, front, red	0690102
	- - green	0690103
	- - black	0690104
	- - blue	0690105
	- - grey	0690106
*12	Cabinet, back, red	0690089
	- - green	0690090
	- - black	0690091
	- - blue	0690092
	- - grey	0690093
*13	Speaker	0760493

See photo on page 9

*23	Dial pointer, FM	0760504
*24	Potentiometer, volume	0854723
*25	Potentiometer, bass	0854810
*26	Dial pointer, AM	0760503
27	Dial rear wall	0534048
28	Bracket	0248800
*29	Telescopic whips	8720001
30	Ferrite aerial, complete with coils	0601016
*31	Ferrite rod, less coils	6700000
*32	Radicator	0858045
33	Radicator bracket	0249228

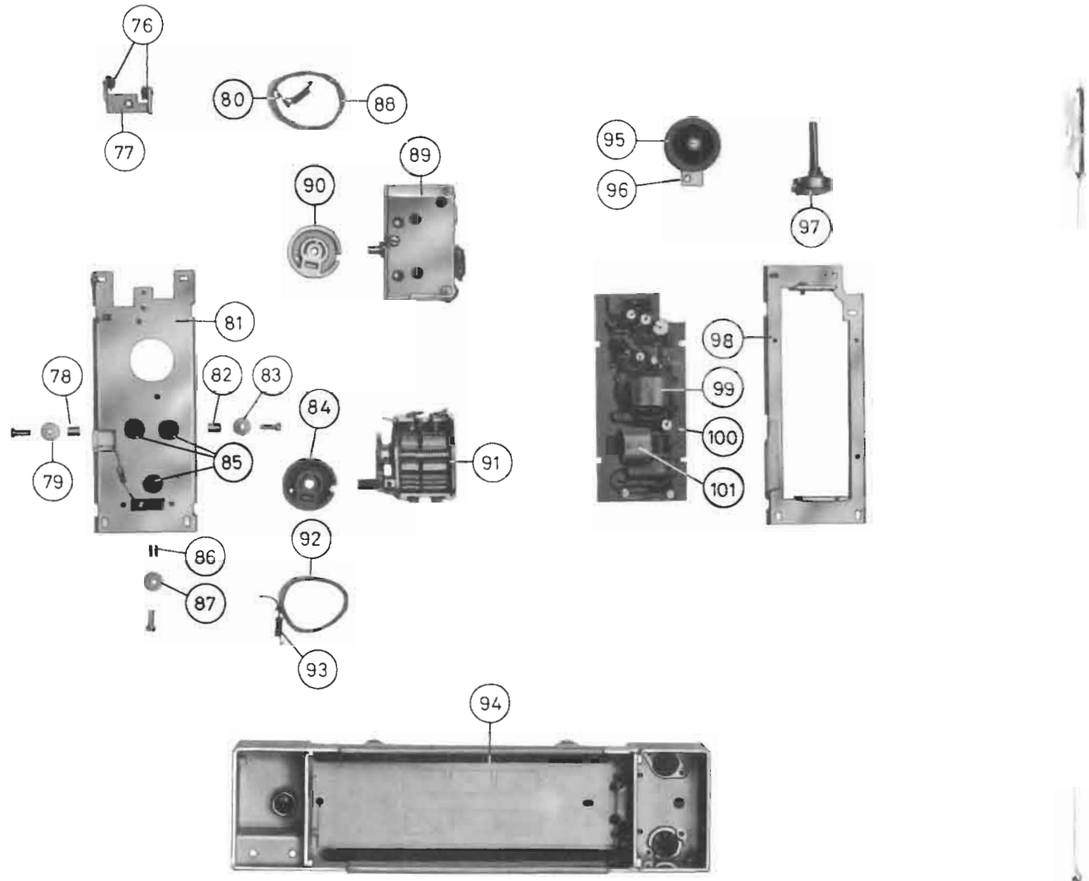
PARTS marked with an * are preferred spare parts





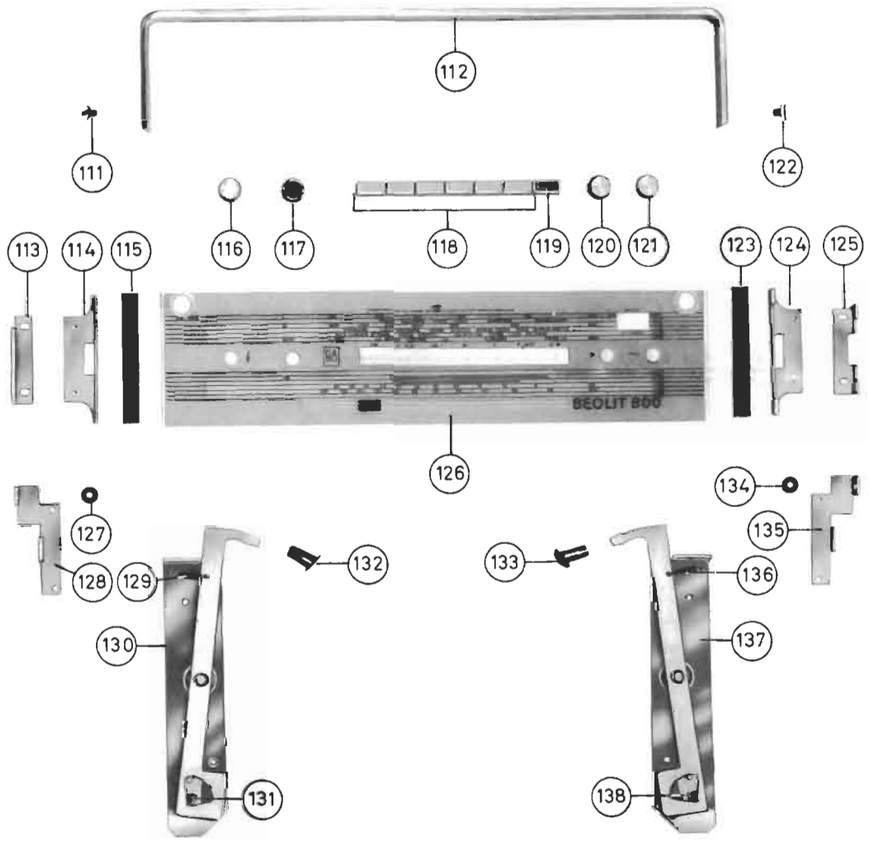
*34	Cord pulley	2724001
35	Cord pulley	2724001
36	Plastic tubing	15 ø × 15 cm PVC.
37	Bracket	0287196
38	Cord pulley	2724002
39	Cord pulley	2724002
40	Bushing	0410165
41	Screw	AM 3 × 10 DIN 84
42	Screw	0106091
43	Spring washer	0286200
44	Spring	0335160
45	Clamp	0288036
46	Bracket	0504265
*47	Springs	0335156
48	Arm	0387310
49	Cord pulley	2724001
50	Bracket	0248909
51	Cord pulley	2724002
52	Pushbutton switch assembly, Type 1301	0854809
	- - - - 1302	0854811
*53	Button	0760487
*54	Buttons	0760488
55	PW unit complete, IF, Type 1301	8001008
	- - - - - 1302	8001092
	Diodes	Three OA 79's
	Socket for electrolytic capacitor	0506101
	Coil, coupling, 10.7 Mc/s	0990054
	- LW osc	0996431
	- MW osc	0996432
	- 49 m osc	0996502
	- 49 m aer	0996503
	- 444 kc/s, series trap	0990128
	Transformer for external-aerial coils	0972143
	Transformer, 1st IF	0971200
	- 2nd IF	0971201
	- AM detector	0971202
	- FM detector I	0971240
	- FM detector II	0971241
	Transistor, AM mixer	AF 126
	- 1st IF	AF 126
	- 2nd IF	AF 126
	Trimmers, 30 pF	C 005 CC/30 E
	- 60 pF	C 005 CC/60 E
56	Stop ring	0376381
57	Washer	0377076
*58	Hub for coupling	0760483
*59	Coupling	0760491
60	Washer	13 ø × 5.1 ø × 0.5
61	Washer	0377076
62	Bearing	0400033
63	Stop ring	0376380
64	Drive shaft with flywheel	0760418
65	Bracket	0248821
66	Bearing	0400029

PARTS marked with an * are preferred spare parts



	76	Cord pulleys	2724000
	77	Bracket	0248802
	78	Bushing	0410273
	79	Washer	0286185
	80	Spring	0330194
	81	Bracket	0504267
	82	Bushing	0410273
	83	Washer	0286185
*	84	Dial drive wheel	0312039
	85	Rubber bushings	0411036
	86	Bushing	0410273
	87	Washer	0286185
	88	Dial cord	3955001
	89	FM tuner	8050005
*	90	Dial drive wheel	0312057
*	91	Tuning capacitor	0840428
	92	Dial cord	3955001
	93	Spring	0330194
*	94	Battery box, complete	0690084
	95	Cord pulley	2724003
	96	Bracket	0249266
*	97	Potentiometer, treble	0854722
	98	Bracket	0504266
	99	Transformer, driver	ST C 3194
	100	PW unit, AF and output	8001007
*		Diode	1.4 St. 1
		Holder for output transistors	0240274
		Transistor, AF	UW 0029
		- AF driver	AC 151
		- Output	AC 153, pair
	101	Transformer, output	ST 3527

PARTS marked with an * are preferred spare parts



Parts for BEOLIT 800, Type 1302

*111	Screw	0104085
*112	Carrying handle	0326079
113	Bracket	0245555
114	Bracket	0245535
115	Cover piece	0280415
*116	Knob, treble	0322241
*117	Knob, tuning	0760492
*118	Buttons for pushbutton switch assembly	0690096
*119	Button for on/off switch	0322333
120	Knob, bass	0322241
121	Knob, volume	0322241
122	Screw	0104085
123	Cover piece	0280415
124	Bracket	0245535
125	Bracket	0245556
*126	Top, complete with dial etc.	0690109
127	Bushing	0412270
128	Bracket	0248913
129	Spring	0330194
130	Bracket	0760443
131	Arm	0760442
*132	Slide shoe	0585026
133	Slide shoe	0585026
134	Bushing	0412270
135	Bracket	0248912
136	Spring	0330194
137	Bracket	0760444
138	Arm	0760442
	Cabinet	0532616 teak/rosewood
*	Slide shoe for bottom	0585018

Other parts as for Type 1301

Extra Accessories

*	Plug, Aerial	10076
*	- Gramophone	8-7506
*	- Speaker	S.34
	- Tape Recorder	8-7506

PARTS marked with an * are preferred spare parts

DESCRIPTION

The BEOLIT 700 (Type 1301) and the BEOLIT 800 (Type 1302) are all-transistor FM-AM receivers for battery operation only. They consist of the following units:
PW unit 8050005, screened FM tuner with AFC diode.
PW unit 8001008 (Type 1301), AM and FM-IF circuits.
PW unit 8001002 (Type 1302), AM and FM-IF circuits.
PW unit 8001007, AF and output circuits.

FM

The FM tuner uses two transistors: one AF 106 and one AF 124. An AFC diode, BA 101, receives control voltage from the discriminator; the AFC is disabled by feeding a stabilized voltage to the diode instead.

AM

AF 126_1 operates as a self-excited mixer and, with the aerial button realeased, receives signal voltage from the ferrite aerial. With the aerial button depressed, AF 126_1 connects to screened coils for LW and MW for auto aerial. AF 126_2 and AF 126_3 are IF amplifiers.

AF

The UW 0029 is a conventional AF amplifier. The AC 151 driver receives stabilized base voltage across the 1.4 St. 1 diode. This stabilization is carried through the emitter circuit and on to the AC 153 output transistors, ensuring constant current drain at decreasing battery voltage and consequently minimizing distortion on loud passages.

TAPE RECORDER AND GRAMOPHONE

plug into a common DIN jack. Pin 1 is used for recording and pin 3 for playback. A BEOGRAM 1000 VF (Type 5202) record player, or a record player using a crystal pickup, should be used.

Radicator

The radicator should be aligned with new dry cells inserted and the MW and 49 m buttons depressed. The shaft of the 500 Ω potentiometer numbered 94 in the circuit diagram should be turned until the pointer hits the stop; then turn in opposite direction until the pointer only just clears the stop.

AF

No-signal current, point I, should be adjusted for approx. 18 mA by means of the 250 Ω potentiometer numbered 524 in the circuit diagram.

MODIFICATIONS

In order to avoid instability in the AM bands, the detector can (0971202) is soldered all along its edge so that perfect screening is ensured.

Some modifications have been introduced in the last series in order to obtain better reproduction on AM, in particular on strong signals.

22 nF	No. 123	has been	replaced	with		10 nF	Pe 125 V.
820 Ω	No. 104	-	-	-	-	1 KΩ	1/2 W.
15 KΩ	No. 508	-	-	-	-	12 KΩ	1/2 W.

A diode, OA 79, has been installed between pin 9 of IF transformer 0971200 and pin 15 of 0971201 (+ end of diode to pin 15).

1 KΩ	No. 91	has been	replaced	with		3.3 KΩ	1/2 W.
10 KΩ	No. 66	-	-	-	-	4.7 KΩ	1/2 W.

DIAL DRIVE